AEROSPACE COATING INDUSTRY SELF-INSPECTION HANDBOOK

For Personnel in Aerospace Manufacturing and Maintenance Coating Operations

Air Resources Board
Compliance Division
Compliance Assistance Program

In Cooperation with
Local Air Pollution Control Districts

Compliance Assistance...

This handbook is to help you understand the air pollution laws which affect aerospace coating operations in California and to help you reduce excess emissions by conducting self-inspections. Reducing emissions improves working conditions, saves money and jobs, and improves the environment. Read on and see what you can do to reduce air pollution and stay in compliance. **You can make a difference !**

Why Reduce Air Pollution ?

Air pollution (smog) costs Californians millions of dollars each year. Many of these costs are indirect, such as rising health care costs, increasing food prices and requiring more frequent maintenance on our property.

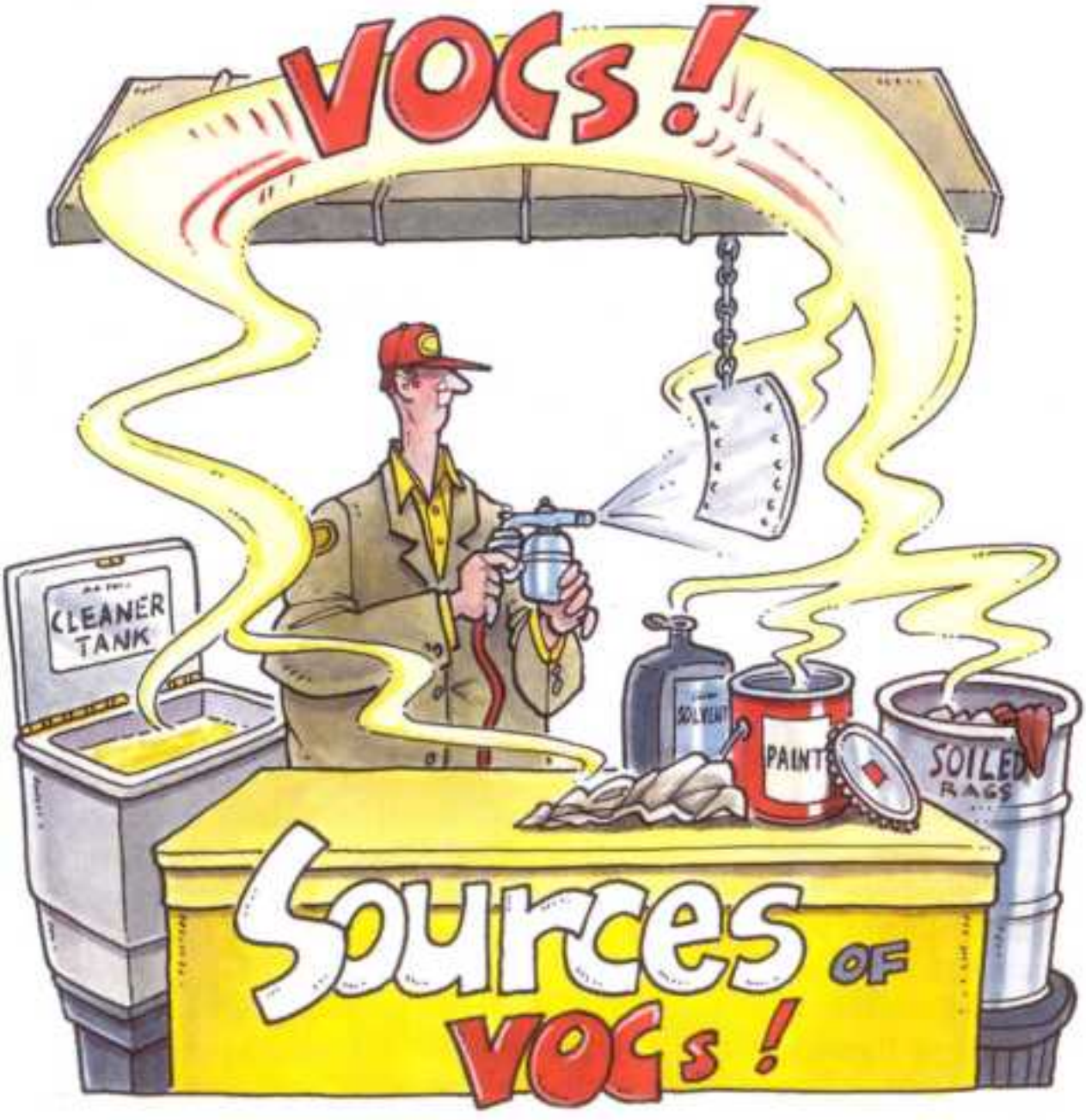
Lung Damage: Ozone, a major component of smog, is a strong irritant that attacks the lungs, makes breathing difficult and causes eyes to water. Smog is especially dangerous for people with respiratory illnesses, the elderly, pregnant women, children, and people who exercise. Prolonged exposure to ozone can cause permanent lung damage. The estimated health costs from ozone related symptoms in the Los Angeles air basin exceed $350 per person per year.

Crop Damage: Ozone damages our forests and reduces crop yields. Reduced crop yields and other crop damage from ozone are estimated to equal $330 million per year in California.

Property Damage: Ozone has been directly linked to property damage. It is a strong corrosive which damages paint on homes and attacks rubber. In the Los Angeles area, these damage costs have been estimated at $500 million per year.

VOCs Help Form Ozone

Organic **solvents** that are used in industry are known as **volatile organic compounds** (**VOCs**). VOCs combine with other pollutants in the presence of sunlight to form ozone. In the aerospace industry, VOCs come from solvents used in paints, maskants, strippers, thinners, clean-up of parts and equipment, and evaporation from storage.



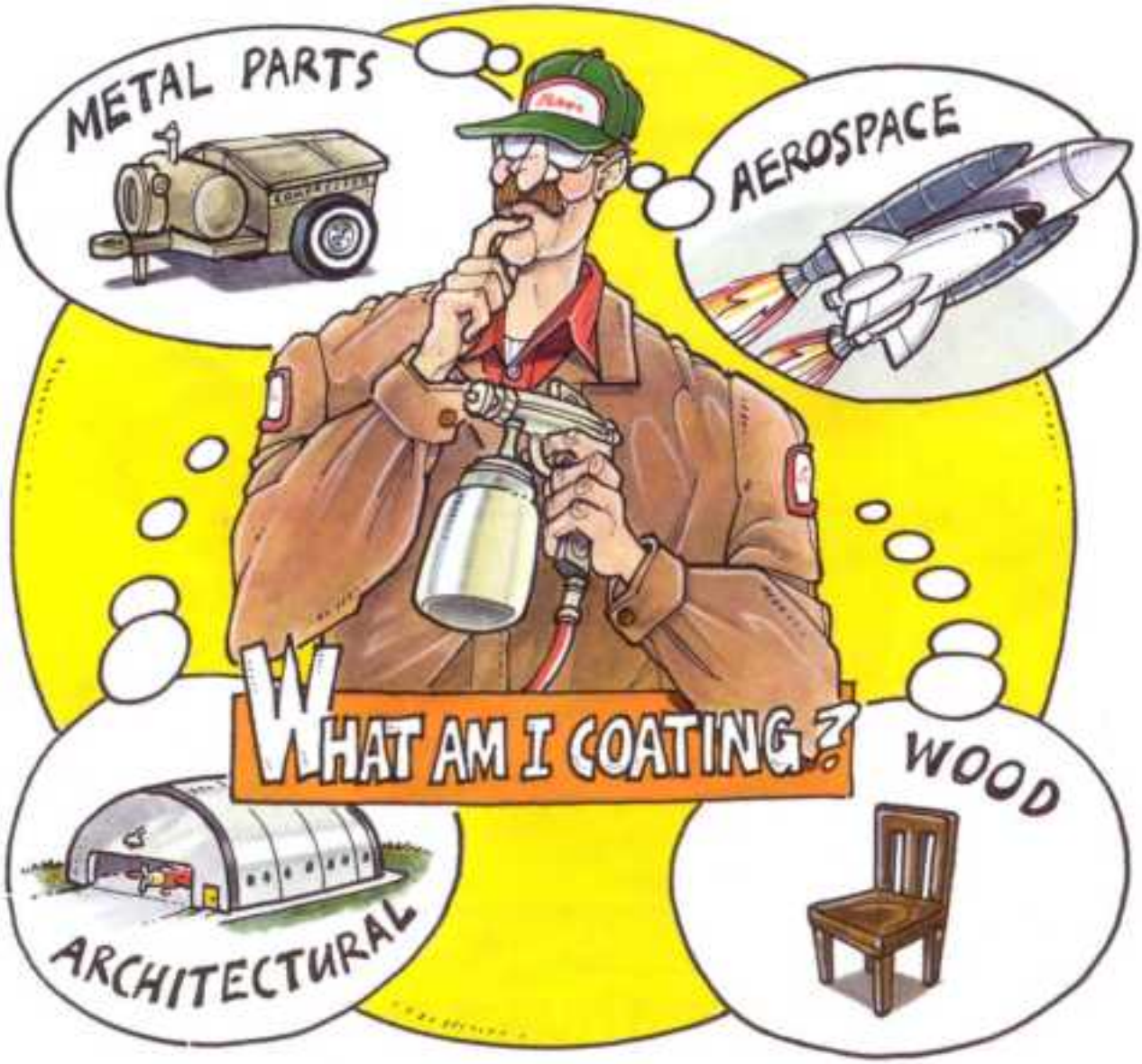
Aerospace coating operations emit **24 tons per day of VOCs** in California. You can do your part to **reduce air pollution** by **reducing the amount of VOCs** that evaporate from your operations.

Use Less Solvent.
Save Money and the Environment!

Solvent is expensive. When you use **less** solvent you save money. Solvents with high vapor pressures or VOC content evaporate quickly and are lost to the air. Air pollution regulations require low VOC and vapor pressure cleaners and strippers to be used on aerospace components to **lower the loss** of solvents to the air. Make sure you minimize your solvent use and are using the right solvent for the job. When you use the right solvent, you save money and the environment.

Which Regulation Do I Follow?

Before you start, ask yourself: what am I coating? Not all parts to be coated are subject to the same regulations. You need to know what regulation applies to your job. **Ask** your supervisor or local air pollution control inspector if you have any **questions**. Know what regulations apply to the part you are coating.



What Aerospace Limits Am I Required to Meet?

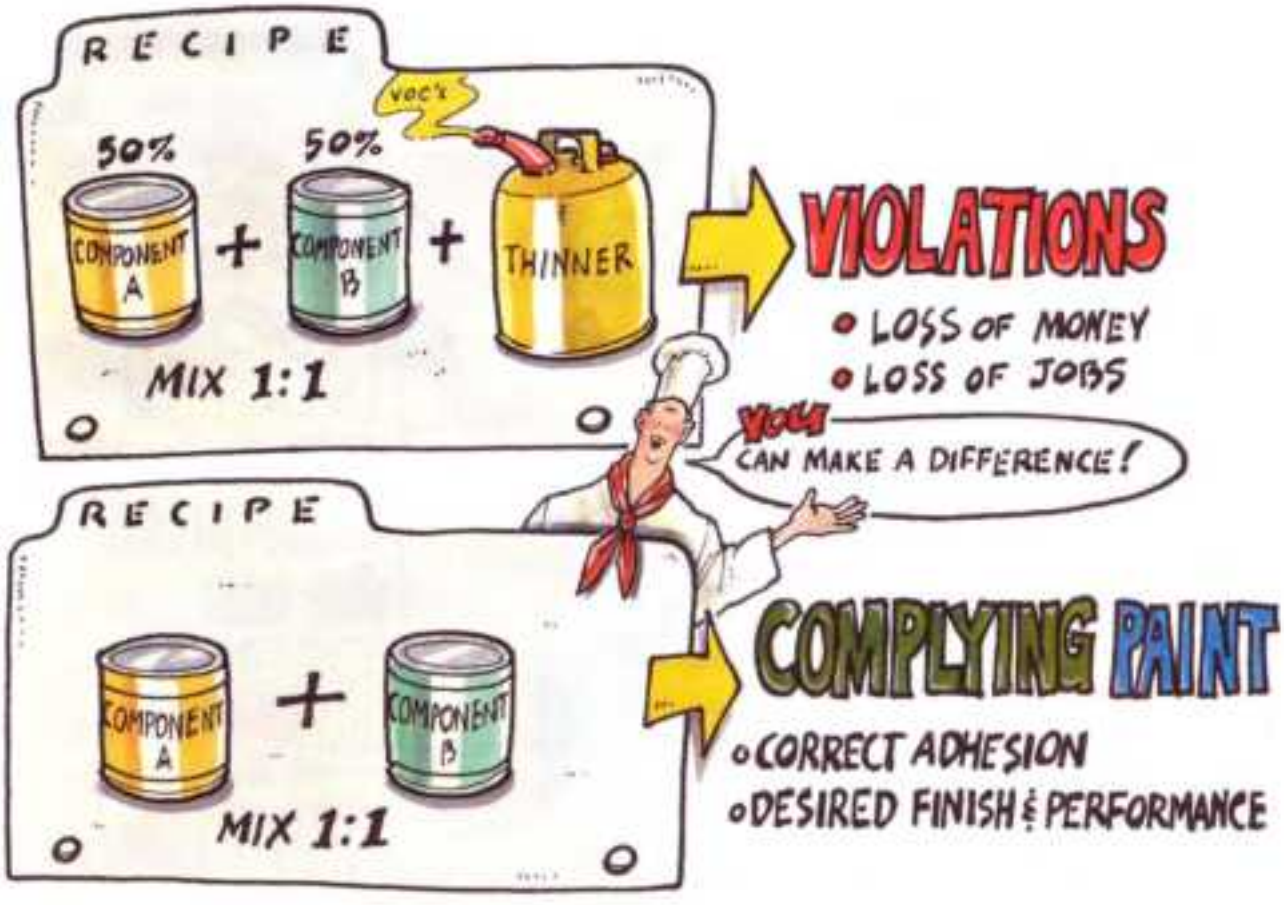
Air pollution regulations set limits on the VOC content in coatings. Some coatings have specific performance requirements which prevent a coating from meeting the general limits. These coatings are called **specialty coatings** and can only be used for the specific performance required of the coating. Use specialty coatings on aerospace parts only when authorized by the regulation and the use is required. Know the VOC content of your coating and the limit it must meet. **Do not use specialty coatings as general primers or topcoats!**

Some Applications Require Specialty Coatings

Don't jeopardize your job.... use only the coating specified for your application!

Mix Your Paints Properly

Coatings are a mixture of solids and solvents. Some solvents are VOCs and cause smog, and some don't. Most thinners are VOCs. When you thin a coating the VOC content will increase. **Do not thin** unless so instructed. Follow the mixing instructions **exactly**. Air pollution regulations limit the amount of VOC in your applied coatings. Find the coating VOC content by checking with your supervisor for the VOC information supplied by the manufacturer. **You can make a difference** by keeping your VOC content within regulation limits.



Thinning Increases VOCs

Record Keeping Helps Compliance

You must keep daily records. It is important to record your coatings as they are mixed. Be as accurate as possible and include the identification (national stock or manufacturer's ID number) and use of each coating component and thinner. Accurate records prove that you are in compliance with the regulation limits. **Follow record keeping directions, be consistent, and be accurate!**

DAILY COATING LOG

Date: _____

Facility: _____ Booth #: _____

Manufacturer Name	Product I.D. Number	Lot Catalyst # Reducer Used	Mix Volume*			Coating Type	VOC Content As Applied	Quantity Used	Spray Method *	Substrate & Part	Baked Temp	Operator Initials	Comments
			P	C	R								
							Total Coating Quantity					Total Clean-up Solvent Usage	

* P = Paint C = Catalyst R = Reducer (Use Actual Volumes)

* A = Air Spray AL = Airless Spray AA = Air-assisted Airless Spray
B = Hand Application D = Dip Coat E = Electrostatic Spray F = Flow Coat H = High Volume Low Pressure R = Roll Coat

Reduce VOCs With Closed Containers

Always store fresh and used solvent, dirty rags, and paints in closed containers.

Transfer Efficiency Depends On You

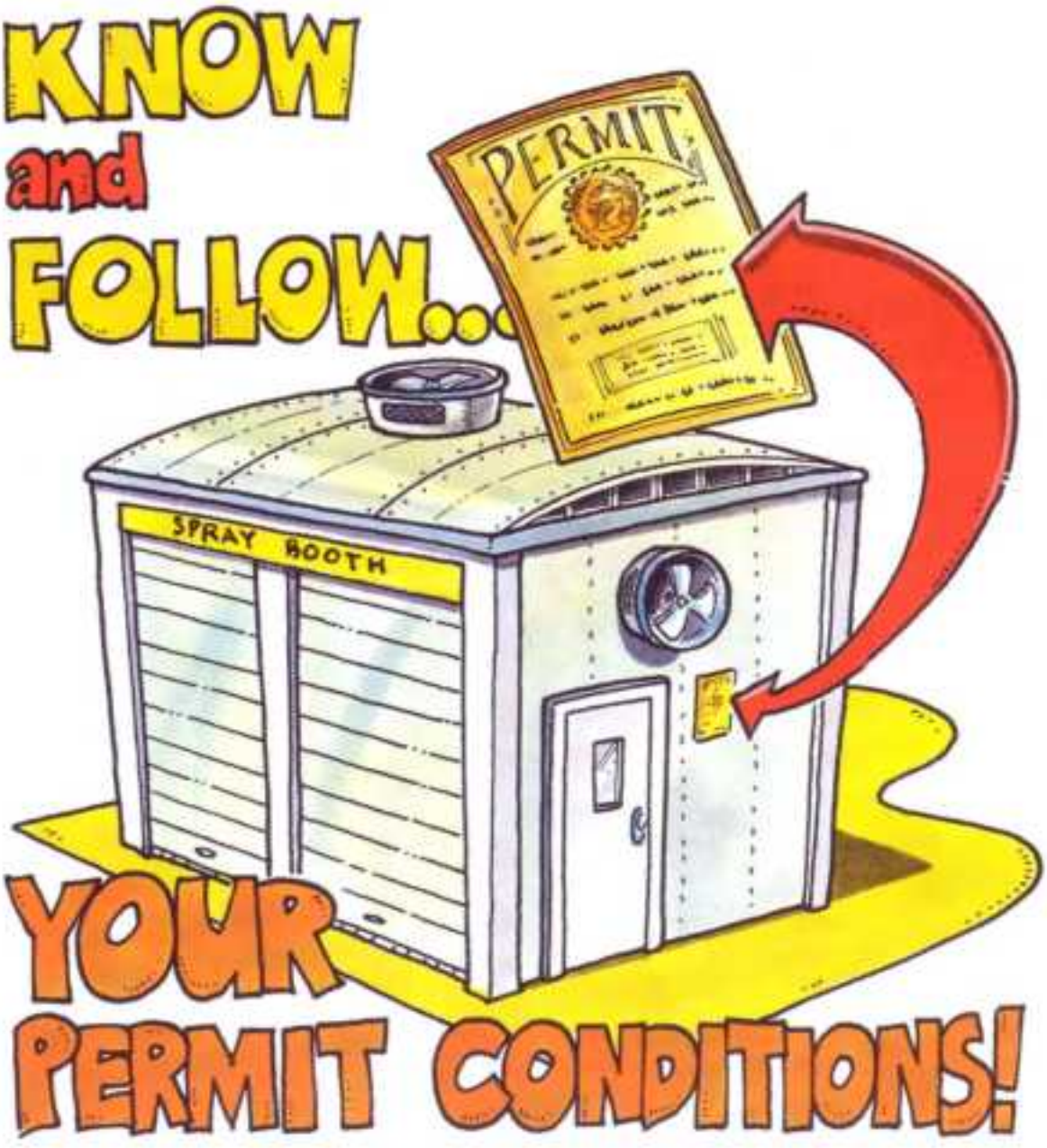
High transfer efficiency methods reduce paint waste and paint use, saving you money. Most districts require high transfer efficiency methods. Proper use requires knowledge of the equipment. If you have questions about the operation of your equipment, ask!

Increase the transfer efficiency of your equipment by checking that you:

- o Rack parts for the most efficient coverage
- o Spray only the part
- o Connect electrostatic power and ground
- o Allow dipcoated parts to drain in dipcoat operations
- o Maintain proper air flow in spray booth
- o Eliminate cross drafts

Your Permit Can Help You Comply - Use It!

Your permit contains valuable information on your coating operation. Your permit may include limits on the amounts and types of coatings that can be used at your facility, equipment line rates and temperatures, emission control equipment requirements, and record keeping requirements.



Post your permit in a visible area. Follow the requirements carefully. Stay **within** the range your permit requires for your equipment and coating usage. Not following the permit conditions can result in the loss of money and the permission to operate your equipment!

The Military Is Not Exempt From Local Regulations

All military facilities and contractors **must comply** with local air pollution regulations. Coatings and solvents obtained through the Federal supply system comply with specifications and standards but, in many cases, may not comply with local air pollution requirements. Make sure you **know your coating limit** and the VOC content of your coating before using it. Pay close attention to military contracts. Military specifications list the physical requirements for a coating, not always the VOC content. Work with the procurement office to ensure that only complying coatings are delivered to the point of use. If you have any questions, ask your local air pollution inspector or the environmental management office at your military facility.

Regular Equipment Maintenance Reduces Emissions

Take action to minimize solvent use by keeping your equipment in good working order. Properly maintained spray booths help keep the operator from breathing harmful vapors, prevent fire hazards, and minimize paint deposits outside of the building. Overspray can travel through improperly installed spray booth filters or noncontinuous water curtains, causing public nuisances and visible emission **violations**. Records can verify that a careful routine check of your equipment has been done.

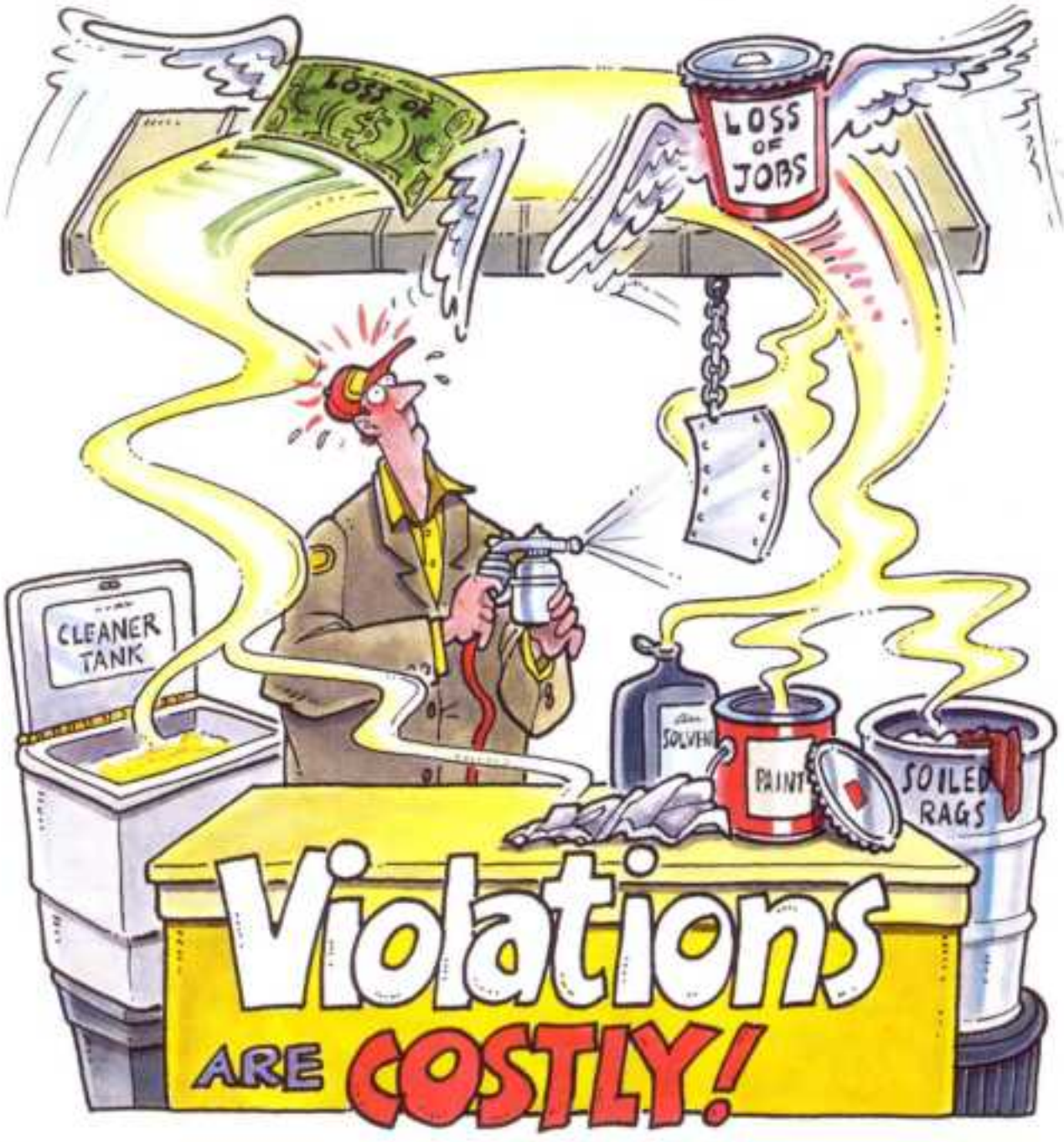
Minimize solvent evaporation by cleaning spray guns in an enclosed drum or gun cleaner. Less evaporation saves solvent and reduces VOC emissions.
You can make a difference.

Reduce Emissions
With Control Equipment !

For operations that use large amounts of solvents and paints or have coatings that cannot comply with local limits, add-on control equipment can be an option. Control devices must be **maintained properly and operated as required** by the manufacturer and your local air pollution control district.

Caution: Read Between The Lines

You are **responsible** to meet the VOC limit for the coating that you are using, even if the coating is required by a contract. You can be **subject to penalty** action should you apply a noncomplying coating. Air pollution regulations also prohibit someone from requiring a noncomplying coating. Make the contract administrator, procurement officer or responsible individual aware of what limits you are required to meet. Use only paints that comply with federal and local regulations. **Know your limits!**



Violations can cost money. The fine for violating air pollution regulations can be up to $25,000 per day. Every day a noncomplying coating is used or your equipment is not complying, the operation or company may be considered in violation. Violations can lead to a **loss of permits to operate**, resulting in the loss of **business and** loss of **jobs**. Be aware of all local requirements. Air pollution regulations are law, so take the time to understand them to prevent violations. Remember, maintaining your equipment in good working order and using complying coatings help to avoid penalties ... and provide a safer workplace, a healthier environment, greater profits and possibly more jobs.

Use a Self-Inspection Checklist

Self Inspection Checklist

Week of _____ to _____ Booth #: _____

Item	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Notes
Complying Coatings Used								
Mix Ratios Posted, VOC (as applied) Below Limit								
Reduced According to Posted Mix Ratios								
High Transfer Equipment Properly Used, Maintained								
Proper Surface Preparation								
Proper Clean-up Materials & Methods								
Recordkeeping Kept Daily, Includes all VOC Materials								
Usage Under Permit Limits, All Permit Conditions Met								
Closed Paint Containers, Closed Solvent Containers								
Closed Waste Containers, Properly Stored & Disposed								
Booth Filter Condition ok, Water Curtain ok								
Exhaust Fans ok								
Manometer Fluid Level ok, Zero'ed, Pressure ok								

Prevent violations. At the beginning of every shift, give your area a once over. Refresh your memory on VOC and solvent cleaning requirements. Check your cleaning operations for leaks and unnecessary solvent use. Check the records of your coating use to make sure that all the required records are being kept properly. Check that all control equipment is working correctly. Make sure all users of your equipment are aware of the requirements for your facility. Identify any problems and **take action!** Do your part to help yourself, your fellow workers, and the environment.


YOU


CAN
MAKE
A
DIFFE
TAKE ACTION!
SAVE OUR AIR!
KNOW
MIX P
KEEP
CLOS
MAIN


YOU CAN MAKE A DIFFERENCE...
SAVE OUR AIR!!!

Need More Information?

Air Resources Board (800) 952-5588 **District: _____**

Multi-County Districts

1 - Bay Area (415) 749-5000
2 - Feather River (530) 634-7659
3 - Great Basin (760) 872-8211
4 - Monterey Bay (831) 647-9411
5 - North Coast (707) 443-3093
6 - Northern Sierra (530) 274-9360
7 - South Coast (909) 396-2000
8 - Yolo-Solano (530) 757-3650
9 - San Joaquin Valley (559) 230-6000

County Districts

Amador (209) 257-0112
Antelope Valley (661) 723-8070
Butte (530) 891-2882
Calaveras (209) 754-6504
Colusa (530) 458-0590
El Dorado (530) 621-6662
Glenn (530) 934-6500
Imperial (760) 482-4606
Kern (661) 862-5250
Lake (707) 263-7000
Lassen (530) 251-8110
Mariposa (209) 966-2220
Mendocino (707) 463-4354
Modoc (530) 233-6419
Mojave Desert (760) 245-1661
No. Sonoma (707) 433-5911
Placer (530) 889-7130
Sacramento (916) 874-4800
San Diego (858) 650-4700
San Luis Obispo (805) 781-4247
Santa Barbara (805) 961-8800
Shasta (530) 225-5789
Siskiyou (530) 841-4029
Tehama (530) 527-3717
Tuolumne (209) 533-5693
Ventura (805) 645-1400

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California Environmental Protection Agency
Air Resources Board

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